

**State Mining and Geology Board**

**1978 Annual Report  
To The  
Governor And The Legislature**

**Adopted By The Board  
December 1, 1978**

**State Mining and Geology Board  
Department of Conservation  
The Resources Agency  
State of California**





*Deery*  
EDMUND G. BROWN JR.  
GOVERNOR OF CALIFORNIA

Robert H. Twiss  
Chairman  
James A. Anderson  
Alcides S. Freitas  
Willard P. Fuller  
Arthur Grantz  
Raymond E. Krauss  
Return F. Moore  
Ta-Liang Teng

THE RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
STATE MINING AND GEOLOGY BOARD

1335 RESOURCES BUILDING  
1416 - 9TH STREET, SACRAMENTO 95814

Honorable Edmund G. Brown Jr.  
Governor of California

Honorable James R. Mills  
President Pro Tempore  
California State Senate

Honorable Leo T. McCarthy  
Speaker  
California Assembly

Gentlemen:

It is my honor to submit the 1978 Annual Report of the State Mining and Geology Board.

This report combines the Board's report to the Legislature on actions taken during the past fiscal year and on legislative recommendations for more complete implementation of the Surface Mining and Reclamation Act of 1975 (Section 2717 of the Act), and a report to the Governor and the Legislature on needed earth science research (Section 674, Chapter 2, Division 1 of the Public Resources Code). Suggestions for strengthening the Alquist-Priolo Special Studies Zones Act of 1972 are also made.

The Board recognizes that State and local governments are being subjected to increasing fiscal constraints. In this restrictive budgetary atmosphere, it is hoped that such long-term benefits to the public as assuring the availability of non-renewable resources, protection from geohazards and maintaining environmental quality will be considered.

Respectively submitted,

A handwritten signature in dark ink, appearing to read "Robert H. Twiss".

Robert H. Twiss  
Chairman



State Mining and Geology Board's  
Annual Report to the Governor  
and the Legislature - 1978

INTRODUCTION

We herein present the highlights of the Mining and Geology Board's activities during the past year in implementing the Surface Mining and Reclamation Act of 1975 (SMARA) and the Alquist-Priolo Special Studies Zones Act of 1972 (APSSZA).

This report combines the Board's report to the legislature on actions taken during the preceding fiscal year and on legislative recommendations for more complete implementation of SMARA (Section 2717 of the Act), and a report to the Governor and the Legislature on needed earth-science research (Section 674, Chapter 2, Division 1 of the Public Resources Code). Suggestions for strengthening APSSZA are also made.

The Board recognizes that State and local governments are being subjected to increasing fiscal constraints. In this restrictive budgetary atmosphere it is hoped that the long-term benefits to the public will be considered.

ACTIONS TAKEN

The Mining and Geology Board pursuant to Section 2717 of SMARA hereby submits its Annual Report on actions taken during 1978.

1. Guidelines for Classification and Designation of Mineral Lands - On June 30, 1978, the Board adopted "Guidelines for Classification and Designation of Mineral Lands" pursuant to Section 2761 of SMARA.

These guidelines implement SMARA by providing direction to the State Geologist in carrying out mineral resource classification of lands

in California that are threatened by uses which would be incompatible with, or would preclude mining. These guidelines establish procedures by which the Board may designate mineral-bearing areas of statewide or of regional significance. The objective of the classification-designation process is to insure, through appropriate lead agency policies and procedures, that mineral deposits of statewide or of regional significance are available when needed.

2. Classification and Designation Priorities - Pursuant to Section 2761 of SMARA, the Board adopted, on January 13, 1978, a resolution establishing priorities for a mineral land classification program to be conducted by the State Geologist and the California Division of Mines and Geology (CDMG).

These priorities were revised by the Board on November 2, 1978 to give mineral lands in urban areas precedence over those in non-urban areas of the State.

This change was necessitated by personnel cuts in the 1978-79 Budget and a legislative directive in the 1978 Budget Act requiring that "positions engaged in the classification of mineral resource areas... shall be used principally for the classification of such areas within urban and urbanizing portions of the State that are subject to urban expansion or other irreversible land uses".

3. Classification and Designation Petitions - The Board recognizes the mineral potential of such non-urban areas of the State as the California Desert Conservation Area (CDCA) and Roadless Area Resource Evaluation (RARE II) areas and the need for a process

to protect significant mineral deposits in these areas from land uses incompatible with mining.

The CDCA and RARE II areas which include Federal lands in the Mojave Desert, Sierra Nevada and Klamath Mountains are being considered under various Federal regulations for possible withdrawal from mineral entry. These areas have potential for major gold, nickel and tungsten production as well as being important sources of boron, rare earths, iron, cement and gypsum. Classification of these areas, according to the Board's revised priorities, will not occur on an extensive basis for at least 5 years.

The Board's Guidelines for Classification and Designation of Mineral Lands provide for what amounts to spot classification and designation of significant mineral deposits in these areas by a petition process. A resolution adopted on November 2, 1978, provided further guidelines for the consideration of such petitions by the Board and the State Geologist.

4. SMARA's Applicability to Federal Lands - The Board took the position, on April 22, 1978, that SMARA applies to all lands in California, including Federal lands. This was done to insure that regulations governing surface mining and reclamation practice are applied as uniformly as possible throughout the State and to minimize unnecessary duplication of such regulations by local, State and Federal agencies. This position is in accord with Opinion SO 76/14 June 29, 1977 of the Attorney General of California.

In support of these objectives negotiations are in progress between the Board, the State Geologist, the U.S. Forest Service and the U.S. Bureau of Land Management to develop a memorandum of understanding which will provide for cooperation between local, State and Federal land managing agencies in fulfilling their respective regulatory responsibilities for surface mining and reclamation. This understanding also will provide for the mutual acceptance by local governments (lead agencies) and Federal agencies of each other's reclamation plans, mining operation plans and environmental documents, when they meet individual agency regulatory requirements. It is hoped that this understanding will help avoid or greatly reduce duplication of effort by mine operators and regulatory agencies in assuring that mineral extraction is conducted in an environmentally acceptable manner.

5. Nomination of State Geologist - Pursuant to Section 677 of Chapter 2, Division 1 of the Public Resources Code, the Board on November 18, 1977, nominated and recommended to the Director of Conservation that Dr. James F. Davis be appointed to the position of State Geologist. The Board also nominated and recommended that Mr. Thomas E. Gay, Jr., who had been serving as Acting State Geologist, be appointed as State Geologist for an interim period prior to Dr. Davis's acceptance.
6. Lead Agency Compliance with SMARA - SMARA did not specify dates for operator or lead agency compliance beyond requiring that surface mining done after January 1, 1976, be conducted under an approved reclamation plan if it was an existing operation with vested rights,



or under a permit and reclamation plan if it was a new operation. The Board in its State Policy for Surface Mining and Reclamation Practice established a compliance date by requiring that operators of existing mines submit reclamation plans to lead agencies by April 28, 1978. Indirectly this policy required that each lead agency adopt an ordinance in conformance with SMARA prior to that date.

A canvass made in April of 1978 indicated that 48% of the 62 identified lead agencies (58 counties and 4 cities) had ordinances in conformance with SMARA. A more recent October canvass, made in preparation for Board action against non-complying lead agencies indicated that of the 73 identified lead agencies (11 more cities were added since the April canvass) 57% had ordinances in conformance with SMARA.

Following the October canvass the Board wrote to non-complying lead agencies indicating that further inaction in adopting an ordinance in conformance with SMARA would expose both the lead agency and surface mine operators within its jurisdiction to possible legal action by the State.

The Board also requested from these lead agencies a written response as to when adoption of their SMARA ordinance is anticipated and as to the status of mine operator notification and reclamation plan submittal.

7. Geologic Techniques for Reducing Adverse Environmental Effects From Timber Harvesting - A joint meeting of the State Board of Forestry and the Mining and Geology Board was held in April, 1978 to discuss programs

to increase the application of geologic techniques to timber harvesting. Joint programs were developed and are discussed under legislative suggestions.

8. Federal Surface Mining Control and Reclamation Act (SMCRA) - SMCRA requires that states wishing to regulate coal mining must provide for a State regulatory agency with specified permitting and enforcement powers. SMARA does not have such provisions as it relies on local permitting and enforcement. Although at present, California has only one operating lignite mine which may or may not be subject to SMCRA (lignite is mined for its montan wax content as a by-product of a clay operation), the State does have some potential for other coal mines. Informal discussions have been initiated with the Federal Office of Surface Mining in Denver concerning California's coal potential and the State's desire to regulate surface mining and reclamation under SMARA.
9. Alquist-Priolo Special Studies Zones Act (APSSZA) - In response to recommendations from a joint subcommittee of the Seismic Safety Commission and the Mining and Geology Board, revision of the Board's APSSZA Policies and Criteria was approved for a January, 1979 public hearing.

Pursuant to Section 2622 of APSSZA and to the Board's Procedures for Review of Special Studies Zones (SSZ) Maps adopted August 11, 1978, the Board reviewed the following Preliminary SSZ maps (USGS 7 1/2 minute quadrangle sheets):

Ventura  
Saticoy  
Del Sur  
Sleepy Valley  
Ritter Ridge  
Palmdale  
Sunland

Burbank  
Mt. Baldy  
Cucamonga Peak  
Yucaipa  
La Habra  
San Fernando

These maps were transmitted by the Board with its comments to the State Geologist for issuance as Official SSZ Maps.

#### LEGISLATIVE RECOMMENDATIONS AND NEEDED EARTH SCIENCE RESEARCH

The Mining and Geology Board recommends that the following program areas need further legislative and administrative consideration.

1. California Division of Mines and Geology (CDMG) Program - Increased support should be given to such mineral resource conservation activities as mineral inventory programs (mineral resources and alternative energy resources of importance to the future of California), mined lands reclamation research, and basic geologic mapping.
2. California Desert Conservation area (CDCA) - Information on the California Desert Area's mineral potential, known from geologic and mineral occurrence studies to be very large, is not commensurate with the scope of pending land use decisions. The Department of Interior, under mandate from the Federal Land Policy and Management Act of 1976, is conducting a study of the desert that requires that recommendations for land use management be made to the Congress by September 30, 1980. The CDMG cannot address effectively mineral resource conservation and development in the desert area under SMARA because of the Act's urban orientation and because of a subsequent legislative directive in the 1978 budget to classify mineral lands principally in urban areas. The Board reasons that State involvement

in this area is critical because it comprises one fourth of the State's total land area and has a high mineral potential. If realistic and justifiable protection of the desert's high recreational and environmental values is to be achieved, the important and in some cases major mineral values that are known or inferred to occur there must be adequately considered.

It is recommended that a major program be developed for the CDMG to identify areas of significant mineral potential in the CDCA. Such information would enable the Federal Government to make realistic and justifiable land use decisions. It would also support the CDMG's mineral lands classification program and assist the Board in the designation of mineral lands of statewide or of regional significance. Such a program will significantly augment the State's mineral resource information base.

3. Geology and Forest Management Practices - The Board recognizes the need for increased geologic input into forest management with the twin goals of sustaining maximum forest productivity and preventing adverse environmental impacts of logging on forest lands and on adjacent lands and streams. In conjunction with the State Board of Forestry it recommends that:
  - a) Slope stability problems and the mechanism of slope failure related to timber harvesting under the geologic, topographic and climatic conditions peculiar to California be investigated.
  - b) A cooperative study of the effects of forest management practices on the productivity and conservation of soils be initiated.

- c) The responsibility for streambed protection be clarified with particular regard to downstream changes resulting from timber harvesting.
4. Geologic Review of Major Projects - To ensure that major projects receive adequate "third party" geologic and seismological review by the State, the Board recommends that the CDMG be given further statutory responsibility for this function. Major projects, such as Federal and State dams, which do not presently receive an independent "third party" geologic and seismological review at the State level, should be reviewed by the CDMG. Provision for public hearings of CDMG findings on these projects should be required.
5. Alquist-Priolo Special Studies Zones Act (APSSZA) - It is recommended that APSSZA be modified to explicitly state that its primary objective, presently unstated, is to prohibit the placing of structures for human occupancy across the traces of active faults. Further definition of what constitutes an active fault in terms of diagnostic features and geologic evidence would help in the implementation of the Act.
6. Natural Areas of Scientific Interest - The Board recognizes the need to protect natural areas containing unique geologic, paleontologic and mineralogic features of outstanding scientific importance. Such protection is not specifically provided for under SMARA, although the Board's classification and designation guidelines provides for the identification of such areas. It is recommended that such areas should be identified and protected; and access to them by the scientific community assured. A statewide program should be established to

identify and protect unique natural areas.

7. SMARA - Reclamation Plan Review - Lead agencies are currently responsible for the review and approval of surface mine reclamation plans. On request from a lead agency, the State Geologist shall furnish technical assistance in the review of reclamation plans (Section 2774 of SMARA). The Mining and Geology Board's State Policy for Surface Mining and Reclamation Practice, Section 3505, further requires that lead agencies forward to the State Geologist copies of approved reclamation plans. The State's role is passive and cannot compensate for lack of funds or expertise at the local level in achieving effective mine reclamation plans.

It is recommended that the State Geologist and the Division of Mines and Geology be given a stronger and more central role in the review and approval of reclamation plans, and that the State Geologist coordinate reclamation plan review with the Department of Fish and Game and Regional Water Quality Control Boards. This would insure that approved plans:

- a) Meet minimum statewide standards established by the Board in its State Policy for Surface Mining and Reclamation Practice;
  - b) Are technically adequate to prevent or minimize adverse environmental effects of surface mining.
  - c) Are reviewed in a consistent and competent manner.
  - d) Comply with the regulations of other State agencies and Boards.
8. SMARA - Reclamation Practices Standards - There is also a need by local agencies for technical guidance in providing for reclamation

on a regional basis. As an example, Yolo and Mendocino counties face the problem of regulating instream sand and gravel mining without adequate knowledge of how mining affects their particular stream systems. The staff of the CDMG should be augmented with reclamation specialists to begin actively providing technical service to local agencies facing similar mining and reclamation problems and to develop research programs aimed at providing solutions to these problems.

9. Abandoned Mines - Mitigation of safety hazards, pollution problems and eyesores at improperly abandoned mines is a State responsibility which has been neglected until recently. At the present time, the Central Valley Regional Water Quality Control Board is conducting a study of abandoned mines in the central valley region primarily to abate water pollution problems. Public safety hazards related to abandoned mines in other areas of the State continue to be ignored. The CDMG should be given a central role in inventorying and assessing the hazard of abandoned mines in those areas of the State not currently being studied. In coordination with other State agencies, the Division should develop recommendations for eliminating the hazards and related pollution problems of improperly abandoned mines. An initial assessment program and subsequent hazard mitigation measures should be initiated soon.
10. Geohazards - Under SMARA and APSSZA the State Geologist provides cities and counties with mineral resource and active fault (fault displacement) information for land use planning. Information from these programs address about 30% of the potential geologic hazards problems in California.

To encompass a greater percentage of geologic hazards, it is suggested that legislation aimed at identifying areas of slope instability hazard be enacted. The purpose of such legislation would be threefold: (1) to promote the acquisition of basic slope stability information in urban and potentially urban areas, (2) to ensure that the local planning process address slope instability and (3) to ensure that such information be taken into account in issuing building and grading permits.

Financial support should be given to detailed geologic mapping programs emphasizing slope stability factors similar to recent cooperative geologic mapping programs between county agencies and CDMG. Provision for developing guidelines for risk assessment, from a geologic and land use standpoint, should be made in the legislation. These guidelines would assist local government decision-making as to the type of development which would be safe under varying degrees of slope instability hazard.

11. Strong Motion Instrumentation Program (SMIP) - Since the start of SMIP in 1972, the CDMG has been primarily engaged in the installation and maintenance of strong motion instruments. To make full use of the data generated by the strong motion instrumentation network so that its benefits can be provided in a timely manner to the people of California, the CDMG should assign high priority to developing the necessary electronic data processing equipment and associated software and to acquiring staff needed to operate the program in order to cope with the anticipated data flow.



12. Funding and Staff Limitations - A growing population and economy in California, as well as new responsibilities assigned to the CDMG, will require increased funding and technical-scientific upgrading of staff. While some of the new SMARA responsibilities have been met by staff and budget augmentation by the Legislature, this year the hiring freeze and budget reductions precluded the filling of three key positions in mineral resource classification.

Because of its concern that these new responsibilities may not be adequately funded under existing mechanisms, the Board intends to make a special effort in 1979 to investigate alternative approaches such as permit fees and mineral revenue taxes. The Board will look forward to working with the Governor and the Legislature, with the mining industry, with affected State and local agencies, and with other interested organizations and individuals in developing new approaches.

13. Soils - The Board is concerned that California has no effective program for monitoring the deleterious changes which are occurring to its soils as a consequence of such activities as increased mechanization, heavy use of chemicals in agriculture, excessive ground water withdrawals and conversion of forest lands to marginal grazing lands.

For example, soil loss to the Russian River from the Dry Creek watershed, exclusive of stream bank erosion amounts to 5.1 tons per acre per year. This watershed was converted from once productive forest lands to marginal grazing lands. While preconversion soil loss figures are not available, a crude comparison of the magnitude of

soil loss resulting from the conversion can be made with eastern forest soil losses. In New Hampshire, soil losses of .01 tons per acre per year are estimated from undisturbed forest lands.

A survey conducted by the Department of Conservation's Soil Resource Protection Group indicates that 2 million acres of cropland and 6 million acres of rangeland in California are subject to moderate to severe water erosion.

The protection of California's soils, which support its multi-billion dollar agricultural and silvaculture industries should be of increasing concern to natural resource managers and public decision makers. Our society's long-term survival, at anything like its present economic base, depends on the continued productivity of its soils.

It is imperative that future soil management decision making be founded on a thorough understanding of the rates of physical and chemical changes occurring to the State's soils, on an understanding of the underlying causative mechanisms for such changes and on the amount of change which can be tolerated before productivity is impaired.

The Board feels that the Department of Conservation, through its efforts to develop a Soil Resource Protection Program, is best suited to begin to formulate and carry out an initial soil monitoring program.